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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/070,884	11/12/2002	Paul K. Zoratti	10541-1323	2484

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EXAMINER

ENGLISH, PETER C

ART UNIT	PAPER NUMBER
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3616

DATE MAILED: 03/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

8

Office Action Summary	Application No. 10/070,884	Applicant(s) ZORATTI ET AL.	
	Examiner Peter C. English	Art Unit 3616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 November 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the plurality of piezoelectric cables (claim 11) and the plurality of optical fibers (claim 12) must be shown or the features canceled from the claims. No new matter should be entered.
2. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

3. The specification is objected to because:
 - At page 5, line 1, “s” should be “a”.
 - At page 5, line 4, “Figure 6A-6C” should be “Figures 6a-6c”.
 - At page 5, line 7, “7A-7C” should be “7a-7c”.
 - At page 5, line 8, “6A-6C” should be “6a-6c”.
 - At page 5, lines 18-19, “with a pedestrian airbag 30 mounted in proximity to the bumper 28” is inaccurate. As shown in Fig. 1, the pedestrian airbag 30 is near the middle of the vehicle.
 - At page 8, line 32, “eachother” should be “each other”.
 - At page 10, line 4, “strips” should be “strip”.
 - At page 10, line 15, “26” should be “16”.
 - At page 11, line 15, “figure illustrates” should be “figures illustrate”.
 - At page 14, line 9, “element” should be “elements”.
 - In the abstract, at line 1, “capable or” should be “capable of”.
 - In the abstract, at line 2, “element” should be “elements”.
- Appropriate correction is required.

Claim Objections

4. Claims 8-20 are objected to because of the following informalities:

In claim 8, at line 4, “of sensor elements” should be inserted after “plurality”.

In claim 15, at line 5, “of sensor elements” should be inserted after “plurality”.

In claim 15, at lines 8 and 10, “accelerometer sensor” should be “accelerometer” or “acceleration sensor”.

In claims 16 and 17, at line 1, “vehicular” should be “vehicle”.

In claims 16 and 17, at line 2, “accelerometer sensor” should be “accelerometer” or “acceleration sensor”.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

5. Claims 11 and 12 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The specification fails to describe how a plurality of piezoelectric cables or a plurality of optical fibers are horizontally disposed along a structural element of a vehicle, with each cable or fiber producing a variable output signal.

6. Claims 6-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claims 6 and 7, at lines 1-2, “said at least one passive restraint” lacks proper antecedent basis. The examiner suggests: at line 2, change “passive” to “deployable”.

In claim 8, at line 10, “said variable output signal” is indefinite because more than one such signal has been previously recited. The examiner suggests: at line 10, insert “of each of said sensor elements” after “signal”.

In claim 10, at lines 1-2, “said variable output signal...is the resistance” is inaccurate. The signal itself is not the resistance; instead, the signal represents or is a measure of the resistance.

In claim 10, at line 2 and line 3, “said deformation sensor element” is indefinite because more than one such element has been previously recited. The examiner suggests that this be changed to “each of said deformation sensor elements”.

In claim 10, at line 2, “the resistance” lacks proper antecedent basis.

In claim 12, “said variable output” (lines 2-3) and “the transmission of light” (line 3) lack proper antecedent basis. Note that claim 8 recites a “variable output signal”.

In claim 15, at line 12, “said variable output” lacks proper antecedent basis. Further, this term is indefinite because more than one variable output signal has been previously recited. The examiner suggests: at line 12, insert “signal of each of said sensor elements” after “output”.

In claim 15, at line 12, “said at least one passive restraint” lacks proper antecedent basis. The examiner suggests: in claim 15, at line 12, change “passive” to “deployable”; and in claims 18-20, at line 2, change “passive” to “deployable”.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 8-10, 13, 15, 17 and 18 are rejected under 35 U.S.C. 102(b) as being anticipated by Meyer et al. (US 5,419,407). Meyer et al. discloses a vehicle impact sensing system comprising: a deformation sensor 1 comprised of force sensing resistor (FSR) sensors 7.1, 7.2 (see column 3, lines 52-63) mounted on a reinforcement beam 2 of a side door (see column 3, lines 17-19); a side air bag 6; and a controller 5 for detecting changes in the resistance of the FSR sensor 7.1, 7.2 and for activating the air bag 6 which such changes indicate that a vehicle impact has occurred. Meyer et al. further discloses that a plurality of FSR sensors can be

disposed along the length of the reinforcement beam 2 in order to more accurately evaluate vehicle impacts (see column 5, line 59 to column 6, line 8). Still further, Meyer et al. discloses that a lateral acceleration sensor is used to more accurately evaluate vehicle impacts (see column 6, lines 8-15).

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

11. Claims 1-4 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Meyer et al. (US 5,419,407) in view of Langford (US 5,583,476). Meyer et al. (discussed above) lacks a bend sensitive resistance sensor comprising a strip of conductive ink containing a plurality of cracks. Langford teaches a bend sensitive resistance sensor comprising a strip 14 of conductive ink containing a plurality of cracks (see column 2, lines 62-65; column 3, lines 23-32; column 4, lines 40-49). From this teaching of Langford, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Meyer et al. by utilizing a bend sensitive resistance sensor comprising a strip of conductive ink containing a plurality of cracks because

such a sensor provides a more consistent and predictable output (see Langford, column 3, line 60 to column 4, line 11).

12. Claims 5 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Meyer et al. in view of Langford as applied to claim 1 above, and further in view of Boran et al. (US 6,169,479). The Meyer et al. and Langford combination lacks a sensor disposed on the vehicle bumper for activation of a pedestrian air bag. Boran et al. teaches a sensor 42 disposed on a vehicle bumper 37 for activation of a pedestrian air bag 39. From this teaching of Boran et al., it would have been obvious to further modify Meyer et al. by providing a sensor disposed on the vehicle bumper for activation of a pedestrian air bag in order to protect a pedestrian who is struck by the vehicle.

13. Claims 11, 12, 14, 16, 19 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Meyer et al. (US 5,419,407) in view of Boran et al. (US 6,169,479). Meyer et al. (discussed above) lacks a sensor disposed on the vehicle bumper for activation of a pedestrian air bag and a front air bag. Boran et al. teaches a sensor 42 disposed on a vehicle bumper 37 for activation of a pedestrian air bag 39 and a front air bag 32. From this teaching of Boran et al., it would have been obvious to modify Meyer et al. by providing a sensor disposed on the vehicle bumper for activation of a pedestrian air bag and a front air bag in order to protect a pedestrian who is struck by the vehicle and in order to protect a vehicle occupant during a front collision.

Meyer et al. also lacks a longitudinal acceleration sensor. Boran et al. teaches a longitudinal acceleration sensor 36. From this teaching, it would have been obvious to further modify Meyer et al. by providing a longitudinal acceleration sensor in order to more accurately evaluate longitudinal vehicle impacts. Meyer et al. additionally lacks sensors having piezoelectric cables. Boran et al. teaches sensors 42 having piezoelectric cables 44. From this teaching, it would have been obvious to further modify Meyer et al. by utilizing sensors having piezoelectric cables because such sensors enable improved discrimination between various types of vehicle impacts (see Boran et al., column 1, lines 23-30; column 2, lines 14-17).

With respect to claim 12, it would have been an obvious matter of design choice to replace the FSR sensors or the piezoelectric sensors with optical sensors since applicant has not

Art Unit: 3616

established that optical sensors solve any particular problem. Further, the substitution of one known sensor for another is generally recognized as being within the level of ordinary skill in the art.

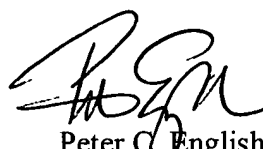
Conclusion

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Wetzel et al., Gillis et al. and Hubbard teach side impact sensing systems.

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Peter C. English whose telephone number is 703-308-1377. The examiner can normally be reached on Monday through Thursday (7:00 AM - 5:00 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul N. Dickson can be reached on 703-308-2089. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9326 for regular communications and 703-872-9327 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1113.

 3/1/04
Peter C. English
Primary Examiner
Art Unit 3616

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March 1, 2004